Serial Number: 10/774,956

Filing Date: February 9, 2004

Title: INDUCTORS FOR INTEGRATED CIRCUITS (As Amended)

Assignee: Intel Corporation

## IN THE CLAIMS

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Please amend the claims as follows:

1. (Currently Amended) An integrated circuit comprising an inductive element fabricated by:

forming a first dielectric layer in a manner that varies in the Z-dimension; and forming a first conductive layer over the first dielectric layer, the first conductive layer also varying in the Z-dimension, the first conductive layer having a length and a width, the length being substantially greater than the width, the first conductive layer being arranged in a substantially straight line along the X-dimension, and the first conductive layer comprising upper segments and lower segments, the upper segments being longer than the lower segments;

wherein, in forming the first conductive layer, the first conductive layer comprises magnetic material.

- 2. (Original) The integrated circuit recited in claim 1 wherein, in forming the first dielectric layer, the first dielectric layer is arranged in a stepped manner.
- 3. (Original) The integrated circuit recited in claim 1 wherein, in forming the first dielectric layer, the first dielectric layer is arranged in an undulating manner.
- 4. (Original) The integrated circuit recited in claim 1 wherein, in forming the first dielectric layer, the first dielectric layer is arranged in a manner that alternates between trenches and pedestals.

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(Original) An integrated circuit as recited in claim 1 and further fabricated by: forming a second dielectric layer in a manner that varies in the Z-dimension; forming a second conductive layer over the second dielectric layer, the second conductive layer also varying in the Z-dimension, the second conductive layer having a length and a width, the length being substantially greater than the width, the second conductive layer being arranged in a substantially straight line along the X-dimension, and the second conductive layer comprising upper segments and lower segments, the upper segments being longer than the lower segments; and

coupling the second conductive layer to the first conductive layer.

- 6. (Original) The integrated circuit recited in claim 5 wherein, in forming the second conductive layer, the upper segments in the first conductive layer are offset 180 degrees from the upper segments in the second conductive layer.
- 7. (Original) The integrated circuit recited in claim 1 wherein, in forming the first conductive layer, the first conductive layer comprises material from the group consisting of copper, aluminum, tungsten, molybdenum, titanium, gold, silver, palladium, a metal silicide, doped polysilicon, or is an alloy whose constituents are from the group.
- 8. (Canceled)
- 9. (Currently Amended) The integrated circuit recited in claim 1 [[8]] wherein, in forming the first conductive layer, the magnetic material is from the group consisting of nickel-iron, cobalt-zirconium-tantalum, iron-tantalum-nickel, nickel-iron-rhenium, and ferro-silicon.
- 10. (Currently Amended) The integrated circuit recited in claim  $\underline{1}$  [[8]] wherein, in forming the first conductive layer, the magnetic material is from the group consisting of iron, nickel, cobalt, manganese, zinc, zirconium, tantalum, rhenium, silicon, and the rare earth elements, or is an alloy whose constituents are from the group.

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## 11-35. (Canceled)

36. (Previously Presented) An integrated circuit comprising an inductive element fabricated by:

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forming a first dielectric layer that varies in the Z-dimension;

forming a first conductive layer over the first dielectric layer, the first conductive layer also varying in the Z-dimension, the first conductive layer having a length and a width, the length being substantially greater than the width, the first conductive layer being arranged in a substantially straight line along the X-dimension, and the first conductive layer comprising upper segments and lower segments, the upper segments being longer than the lower segments.

forming a second dielectric layer that varies in the Z-dimension;

forming a second conductive layer over the second dielectric layer, the second conductive layer also varying in the Z-dimension, the second conductive layer having a length and a width, the length being substantially greater than the width, the second conductive layer being arranged in a substantially straight line along the X-dimension, and the second conductive layer comprising upper segments and lower segments, the upper segments being longer than the lower segments; and

coupling the second conductive layer to the first conductive layer; wherein the first and second dielectric layers are formed simultaneously; and wherein the first and second conductive layers are formed simultaneously.

- 37. (Previously Presented) The integrated circuit recited in claim 36 wherein, in forming the first dielectric layer, the first dielectric layer is arranged in a stepped manner.
- 38. (Previously Presented) The integrated circuit recited in claim 36 wherein, in forming the first dielectric layer, the first dielectric layer is arranged in an undulating manner.
- 39. (Previously Presented) The integrated circuit recited in claim 36 wherein, in forming the first dielectric layer, the first dielectric layer is arranged in a manner that alternates between trenches and pedestals.

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AMENDMENT UNDER 37 C.F.R. 1.116 – EXPEDITED PROCEDURE

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40. (Previously Presented) The integrated circuit recited in claim 36 wherein, in forming the second conductive layer, the upper segments in the first conductive layer are offset 180 degrees

from the upper segments in the second conductive layer.

41. (Previously Presented) The integrated circuit recited in claim 36 wherein, in forming the

first conductive layer, the first conductive layer comprises material from the group consisting of

copper, aluminum, tungsten, molybdenum, titanium, gold, silver, palladium, a metal silicide,

doped polysilicon, or is an alloy whose constituents are from the group.

42. (Previously Presented) The integrated circuit recited in claim 36 wherein, in forming the

first conductive layer, the first conductive layer comprises magnetic material.

43. (Previously Presented) The integrated circuit recited in claim 42 wherein, in forming the

first conductive layer, the magnetic material is from the group consisting of nickel-iron, cobalt-

zirconium-tantalum, iron-tantalum-nickel, nickel-iron-rhenium, and ferro-silicon.

44. (Previously Presented) The integrated circuit recited in claim 42 wherein, in forming the

first conductive layer, the magnetic material is from the group consisting of iron, nickel, cobalt,

manganese, zinc, zirconium, tantalum, rhenium, silicon, and the rare earth elements, or is an

alloy whose constituents are from the group.

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45. (Previously Presented) An integrated circuit comprising an inductor fabricated by: forming a first dielectric layer that varies in the Z-dimension;

forming a first conductive layer over the first dielectric layer, the first conductive layer also varying in the Z-dimension, the first conductive layer having a length and a width, the length being substantially greater than the width, the first conductive layer being arranged in a substantially straight line along the X-dimension, and the first conductive layer comprising upper segments and lower segments, the upper segments being longer than the lower segments,

forming a magnetic layer comprising magnetic material over the first conductive layer, the magnetic layer also varying in the Z-dimension.

- 46. (Previously Presented) The integrated circuit recited in claim 45 wherein, in forming the magnetic layer, the magnetic material is from the group consisting of nickel-iron, cobalt-zirconium-tantalum, iron-tantalum-nickel, nickel-iron-rhenium, and ferro-silicon.
- 47. (Previously Presented) The integrated circuit recited in claim 45 wherein, in forming the magnetic layer, the magnetic material is from the group consisting of iron, nickel, cobalt, manganese, zinc, zirconium, tantalum, rhenium, silicon, and the rare earth elements, or is an alloy whose constituents are from the group.